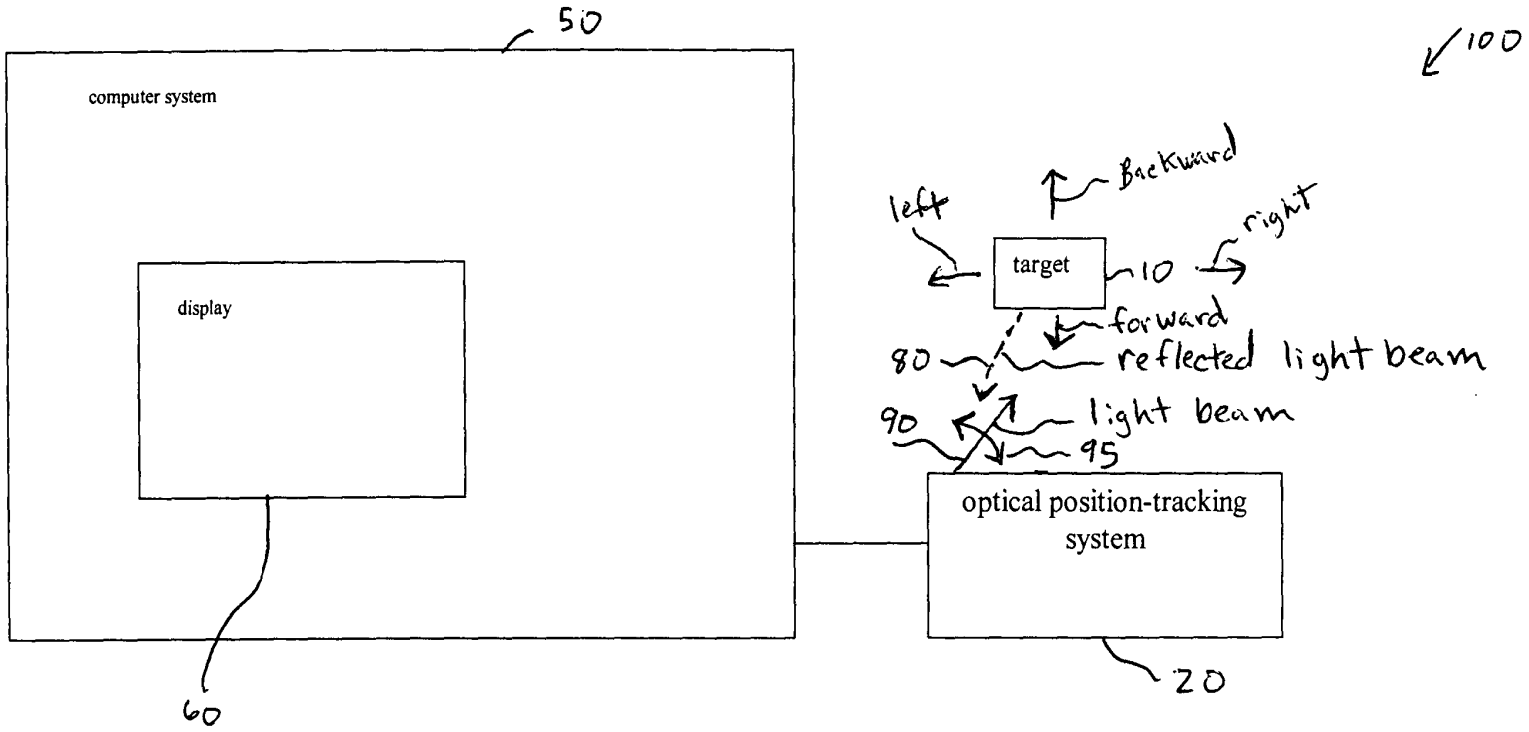

50
100
computer system
display
60
left
Backward
right
target
10
forward
80
reflected light beam
90
light beam
95
optical position-tracking system
20

Figure 1

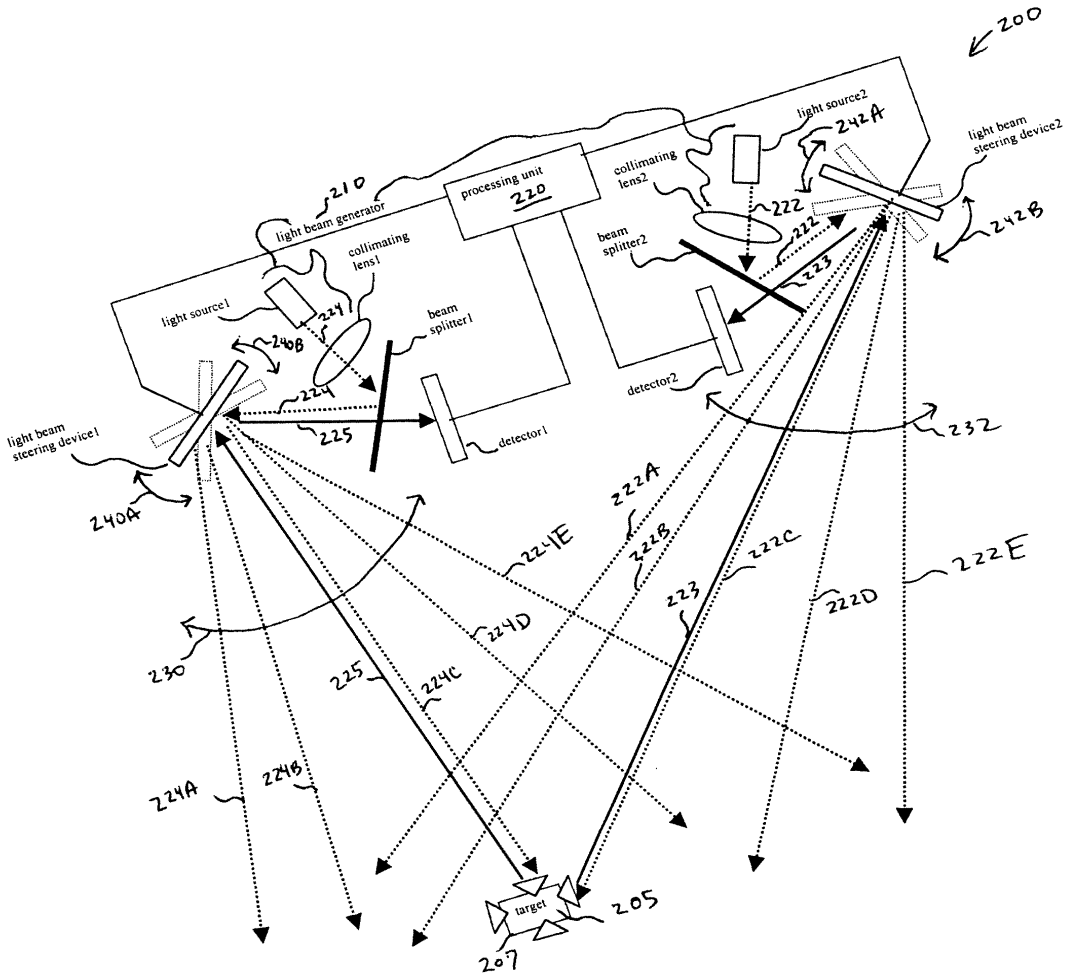

200
210
light beam generator
processing unit
220
collimating lens1
light source1
240B
224
beam splitter1
detector1
225
light beam steering device1
240A
collimating lens2
light source2
242A
222
beam splitter2
223
detector2
232
light beam steering device2
242B
222A
222B
222C
222D
222E
224A
224B
224C
224D
224E
230
target
205
207

Figure 2

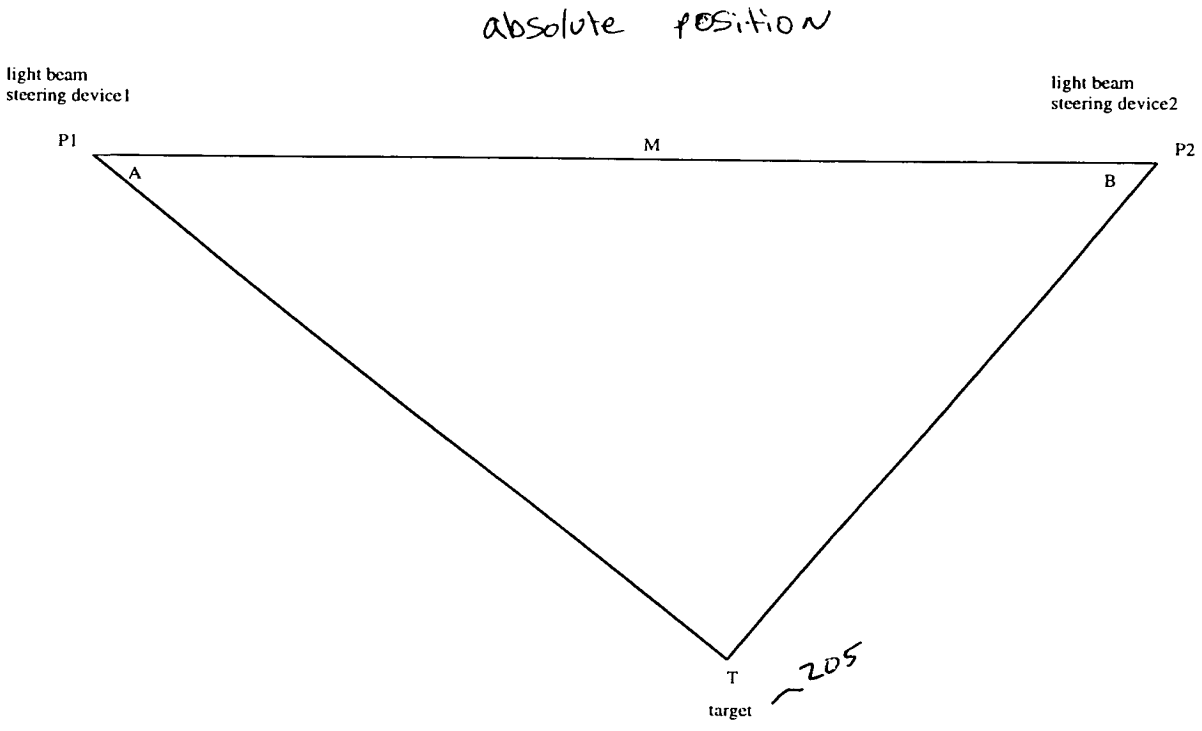

absolute position
light beam
steering device1
light beam
steering device2
P1
M
P2
A
B
T
target
205

Figure 3

Figure 4A

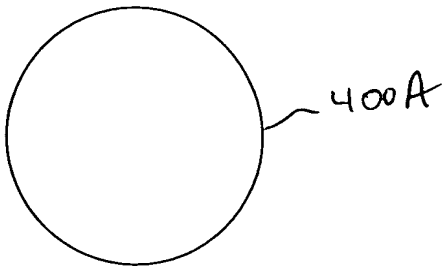
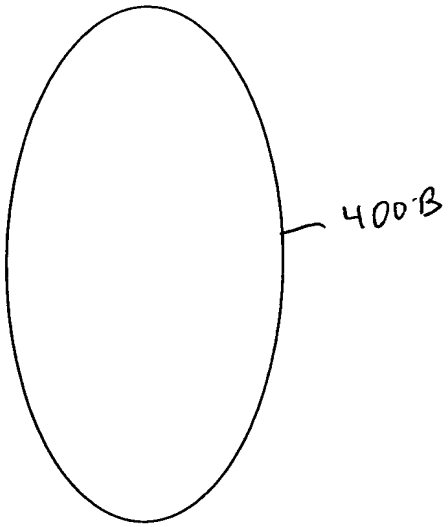


Figure 4B



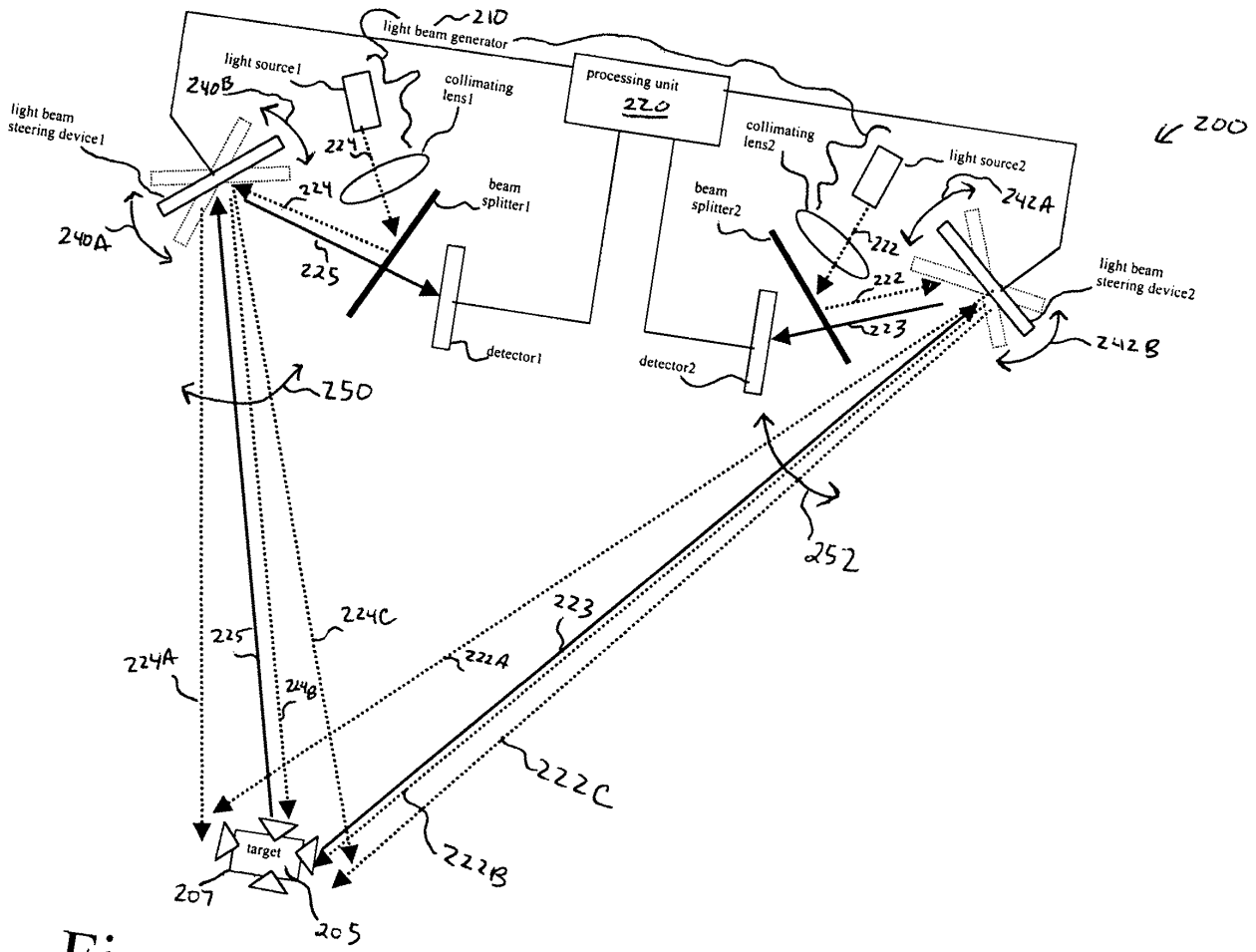
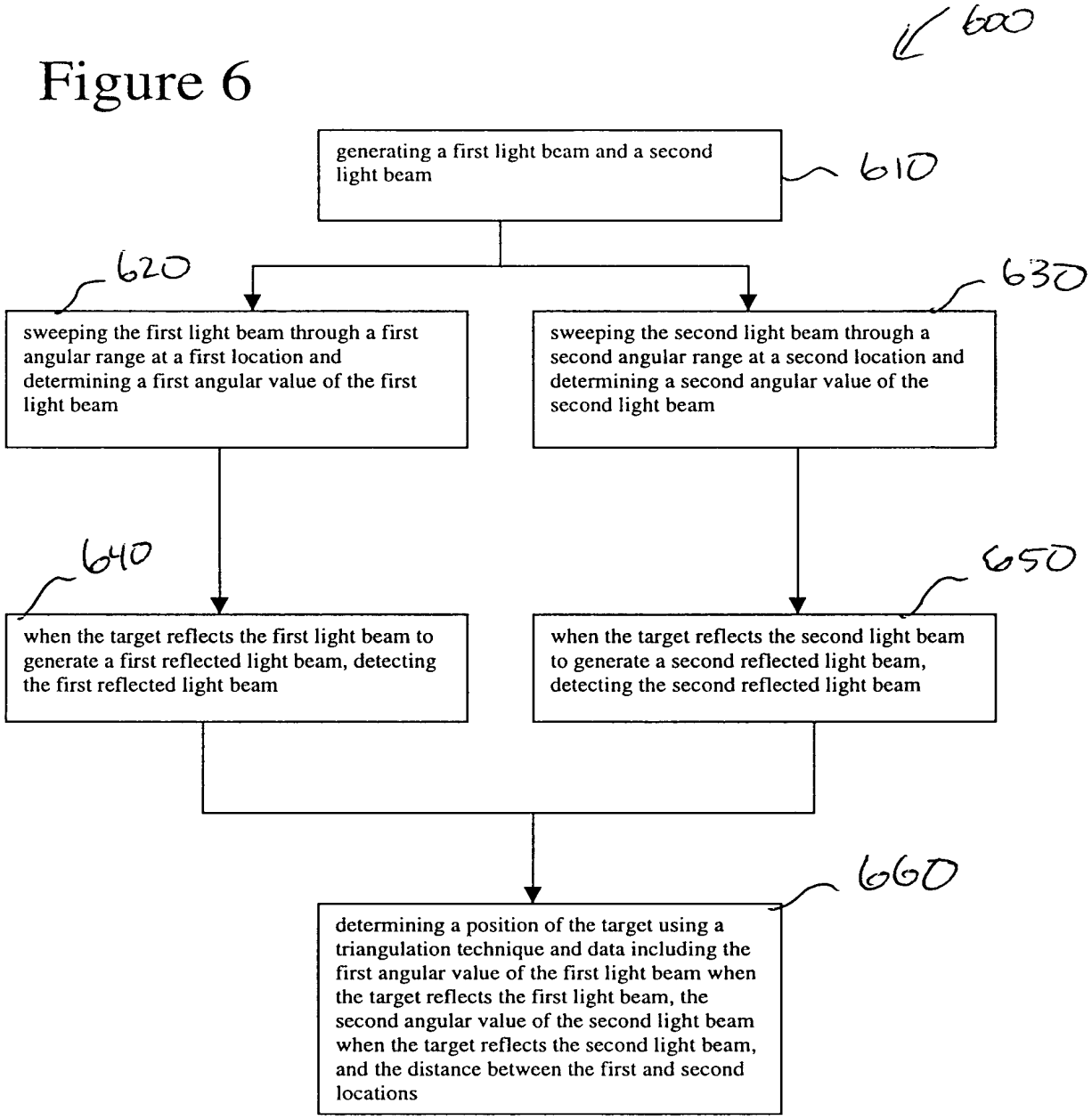

210
light beam generator
light source1
240B
collimating lens1
processing unit
220
200
light beam steering device1
224
beam splitter1
collimating lens2
light source2
242A
beam splitter2
240A
225
222
222
light beam steering device2
detector1
223
242B
detector2
250
252
224C
223
225
224A
222A
224B
222C
target
222B
207
205

Figure 5

Figure 6


600
generating a first light beam and a second light beam
610
620
sweeping the first light beam through a first angular range at a first location and determining a first angular value of the first light beam
630
sweeping the second light beam through a second angular range at a second location and determining a second angular value of the second light beam
640
when the target reflects the first light beam to generate a first reflected light beam, detecting the first reflected light beam
650
when the target reflects the second light beam to generate a second reflected light beam, detecting the second reflected light beam
660
determining a position of the target using a triangulation technique and data including the first angular value of the first light beam when the target reflects the first light beam, the second angular value of the second light beam when the target reflects the second light beam, and the distance between the first and second locations